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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,146	07/19/2006	Akiyoshi Kawaoka	279407US0PCT	7139
22850	7590	04/02/2009		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER	
			PAGE, BRENT T	
			ART UNIT	PAPER NUMBER
			1638	
			NOTIFICATION DATE	DELIVERY MODE
			04/02/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/552,146	Applicant(s) KAWAOKA ET AL.	
	Examiner BRENT PAGE	Art Unit 1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 October 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/2006 and 7/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1-11 are pending and examined herein on the merits.

Drawings

The drawings are objected to because they contained marked up figures that are not suitable for printing. A clean set of drawings is required for publication. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yadav (US Patent 7115798 filed on November 17, 2000) in view of Cigan et al (US patent 5763243).

The claims are drawn to a vector comprising 3 promoters wherein promoter 1 shows activity in at least a callus and a plant tissue where the desired gene should be expressed, promoter 2 shows activity in at least a callus and promoter 3 shows activity in a plant tissue where promoter 1 and promoter 2 do not show activity, an element comprising promoter 1, an expression inhibitory sequence and a desired gene which is inhibited by said inhibitory sequence and an element comprising promoter 2, an expression inhibitory gene, promoter 3 the expression inhibitory sequence and a gene of removal reaction-catalyzing enzyme wherein expression is inhibited by the expression inhibitory sequence and wherein the DNA sequence is removed by expression of the gene of a removal reaction-catalyzing enzyme, wherein promoter 1 shows activity in at least a floral meristematic cell and a callus, wherein promoter 2 shows activity in a callus but neither promoter 1 or promoter 2 show activity in a meristematic cell of a

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bud and wherein promoter 3 shows activity in a meristematic cell of a bud, wherein promoter 1 and 2 are selected from the promoters of the genes PISTILLATA, APETALA1, APETALA2, APETALA3, AGAMOUS, LEAFY, SEPALLATA3 or TA29, and wherein promoter 3 is selected from the histone H3 promoter, histone H4 promoter, or the promoter from the SHOOT MERISTEMLESS gene or CUP-SHAPED COTYLEDON gene, wherein the desired gene is a cytotoxin selected from a gene encoding Bax, RNase, protease or a DAM methylase, wherein the expression inhibitory sequence is an operator sequence and wherein the removal reaction-catalyzing enzyme is a site-specific recombination system wherein the second element of the vector is interposed between two recognizing sequences which are recognized by a recombinant enzyme encoded by the recombinant enzyme gene and mutually face the same direction, and a method for producing a plant transformant while inhibiting expression of a desired gene in a callus, which comprises introducing the gene into a plant cell using the above described vector and culturing the plant cell to redifferentiate a plant tissue or organ via a callus, and a method for producing a sterile plant comprising the above method and redifferentiating a bud to produce a plant individual.

Yadav (US Patent 7115798 filed on November 17, 2000) teaches a method for producing a sterile plant by transforming a plant cell with a vector comprising a PISTILLATA promoter (PI), AGAMOUS promoter and a shoot apical meristem promoter (see the 2nd paragraph before the Examples section, claims 1-7, and the section on promoters, for example), wherein the gene of

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interest is a Barnase which is a cytotoxin which is an RNase (see first full paragraph in Column 31, for example), wherein the expression inhibitory sequence is a stop fragment (see claims 1-7, for example) flanked by recombinase recognition sites (see claims 1-7, for example) and wherein the reaction catalyzing enzyme is a recombinase (see claims 1-7, for example and site-specific recombination system, Columns 19-20, for example) wherein the genetic element is interposed between two recognizing sequences which are recognized by a recombinant enzyme encoded by the recombinant enzyme gene and mutually face the same direction (see figures and claims 1-7, for example) and a method for producing a plant transformant and a sterile plant (Columns 29-30, for example) comprising transforming with said vector and culturing the plant cell to redifferentiate via a callus (see Plant Transformation Columns 22-23).

Yadav does not teach the above wherein the expression inhibitory sequence is an operator sequence.

Cigan et al teaches a reversible nuclear genetic system for male sterility in plants using two tissue specific promoters, the lexA DNA binding domain as an operator sequence inhibiting the expression of a DAM methylase (see claims 1-2, 5, 28, and Examples 1-4, for example).

The vector elements of the instant claims are all known elements in the prior art and combined with the goal of generating sterile plants wherein the sterility may be switched on and off as taught by Yadav.

Given the state of the art and the disclosures by Yadav and Cigan et al, it would have been obvious to one of ordinary skill in the art to produce sterile

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plants using the vectors taught by Yadav and modifying them by using operator sequences as inhibitory sequences as taught by Cigan et al. One of ordinary skill in the art would have been motivated to do so because Cigan et al already teach the regulation of the expression of cytotoxin genes using such a system and one of ordinary skill in the art would have readily recognized the regulation as a design choice that could be used in combination with the site-specific recombination system taught by Yadav.

Claims 1-11 rejected under 35 U.S.C. 103(a) as being unpatentable over Yadav (US Patent 7115798 filed on November 17, 2000) in view of Cigan et al (US patent 5763243) as applied to claims 1-7 and 9-11 above, and further in view of Hartley et al (US20020192819).

The claims are drawn to the above wherein the operator sequences are selected from GAL4 or the LacI gene.

Cigan et al do not teach the GAL4 or LacI gene, however these operator sequences were well known in the art and used as operator sequences in plant transformation as exemplified by Hartley et al wherein Hartley et al show several possible DNA binding domains (see claim 18, for example) that are merely design choices.

No claims are free of the prior art.

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRENT PAGE whose telephone number is (571)272-5914. The examiner can normally be reached on Monday-Friday 8-5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571)-272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Brent T Page

/Russell Kallis/

Primary Examiner, Art Unit 1638

March 26, 2009